

The embodiments of the invention in which an exclusive property are claimed are as follows:

1. An automatic firearm operating on the basis of a blow-back action, said firearm having:

- 1) a barrel with a breech and a chamber for receiving a round to be fired,
  - 2) a receiver into which the barrel is mounted, and
  - 3) a unitary bolt carrier assembly including a bolt, a firing pin and a carrier fixed for movement as a unit, said firing pin being axially aligned with said chamber, said assembly being slidably mounted in said receiver for shifting during cycling of the weapon between a first position wherein the bolt is in-battery against said breech and a second position wherein said bolt carrier assembly is fully removed from the breech while cycling in a full blowback mode;
  - 4) a return spring, seated within the weapon for urging the bolt carrier assembly towards the in-battery position when the weapon is cycling; and
  - 5) weight means slideably mounted within a containment space that travels with the bolt carrier assembly for sliding motion with respect to said bolt carrier assembly,
- whereby, when the weapon is cycling with the bolt carrier assembly having moved rearwardly away from its first position against said breech, to said second position, said weight means will slide away from the breech in its containment space and so remain on the return stroke of the cycle until the bolt is again at the in-battery position, and when the bolt carrier assembly has returned to the in-battery position, the weight means will slide forwardly in

its containment space towards the breech to the forward limit of its travel, bearing against the bolt carrier assembly when it comes to the in-battery position and thereby increasing the dwell-time for the bolt when it is in the in-battery position during automatic firing, allowing time to ensure that the firing pin will effectively advance to fire a round.

2. An automatic firearm as in Claim 1 wherein said weight means is displaced laterally from axial alignment with the firing pin,

3. An automatic firearm as in Claim 1 wherein said weight means is displaced from containment by said return spring.

4. An automatic firearm as in Claim 1 comprising:

a) a guide rod mounted on a seat within the receiver for guiding the bolt carrier assembly in moving between said first and second positions;

b) a cylinder sleeve having pierced rearward and forward end walls and a mid-wall carried by the bolt carrier assembly and mounted through said pierced rearward and forward end walls, for sliding displacement on said guide rod extending through said mid-wall; and

c) said return spring being mounted on said rod and extending from said seat and towards the mid-wall of the cylinder sleeve to bias the cylinder sleeve to effect said return stroke;

wherein the weight means is mounted within the cylinder sleeve, free to slide on said rod within said cylinder sleeve, moving independently of said return spring.

5. An automatic firearm as in Claim 4 comprising cushioning spring means positioned between the weight means and the forward end wall of the cylinder sleeve.
6. An automatic firearm as in Claim 5 wherein the weight means comprises a plurality of weights slideably mounted on said guide rod.
7. An automatic firearm as in Claim 6 comprising washers located between said plurality of weights and mounted for sliding displacement on said guide rod.
8. An automatic firearm as in Claim 4 wherein the weight means comprises a plurality of weights slideably mounted on said guide rod and further comprising washers located between said plurality of weights and mounted for sliding displacement on said guide rod wherein the washers are made of a polymeric plastic.
9. An automatic firearm as in claim 1 having:
  - a) a standard barrel and a standard chamber of respective given diameters that are dimensioned to fire standard ammunition, said standard ammunition comprising a cartridge with a projectile and a cartridge case which are of a diameter that is substantially equal to the diameter of the said chamber;
  - b) a standard receiver into which the barrel is mounted;
  - c) a training bolt carrier assembly comprising a training bolt carrier, a training bolt with a standard firing pin and training bolt recess with

a face through which the firing pin will operate by advancement into said recess upon firing,  
said training bolt recess being dimensioned or shaped to exclude the seating of a standard cartridge case head and consequently precluding the firing of standard ammunition while allowing the seating of a training low-energy cartridge case head of matching diameter.

10. A conversion kit for an automatic firearm, said automatic firearm having in its standard form:

a) a standard barrel and a standard chamber of respective given diameters that are dimensioned to fire standard ammunition, said standard ammunition comprising a cartridge with a projectile and a cartridge case which are of a diameter that is substantially equal to the diameter of the said chamber;

b) a standard receiver into which the barrel is mounted;

c) a bolt carrier assembly comprising a bolt carrier, and a bolt with a standard firing pin and bolt recess with a face through which the firing pin will operate by advancement into said recess upon firing,  
said training kit for operation of the firearm on the basis of a blow-back action comprising:

a training bolt carrier assembly comprising:

(i) a unitary training bolt carrier assembly including a bolt, a firing pin and a carrier fixed for movement as a unit, said firing pin being mounted so as to be axially aligned with said chamber, said training bolt carrier assembly being slidably mounted in said receiver for shifting during cycling of the weapon between a first position wherein the

bolt is in-battery against said breech and a second position wherein said training bolt carrier assembly is fully removed from the breech while cycling in a full blowback mode; and

- (ii) weight means slideably mounted within a containment space that travels with the bolt carrier assembly for sliding motion with respect to said training bolt carrier assembly

whereby, when the weapon is cycling with the training bolt carrier assembly having moved rearwardly away from its first position against said breech, to said second position, said weight means will slide away from the breech in its containment space and so remain on the return stroke of the cycle until the bolt is again at the in-battery position, and when the training bolt carrier assembly has returned to the in-battery position, the weight means will slide forwardly in its containment space towards the breech to the forward limit of its travel, bearing against the training bolt carrier assembly when it comes to the in-battery position and thereby increasing the dwell-time for the bolt when it is in the in-battery position during automatic firing, allowing time to ensure that the firing pin will effectively advance to fire a round.

11. A conversion kit as in claim 10 wherein comprising a training bolt carrier, a training bolt with a standard firing pin and training bolt recess with a face through which the firing pin will operate by advancement into said recess upon firing, said training bolt recess being dimensioned or shaped to exclude the seating of a standard cartridge case head and consequently precluding the firing of standard ammunition while allowing the seating of a training low-energy cartridge case head of matching dimensioned or shape.

12. A conversion kit as in claim 11 wherein said training bolt recess is circular, having a diameter to exclude the seating of a standard cartridge case head and consequently precluding the firing of standard ammunition while allowing the seating of a training low-energy cartridge case head of matching diameter.